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SEQUENCE LISTING

<110> Cade, Rebecca M
Dietrich, Robert A

<120> GENES ENCODING PROTEINS INVOLVED IN THE REGULATION OF
SAR GENE EXPRESSION IN PLANTS

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<150> 60/171,008

<151> 1999-12-15

<150> 60/175,519

<151> 2000-01-11

<160> 23

<170> PatentIn Ver. 2.1

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<223> gene product NI16

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ggctaac atg aac aac tct ttg aag aaa gaa gaa cgc gta gaa gaa gat 109

Met Asn Asn Ser Leu Lys Lys Glu Glu Arg Val Glu Glu Asp

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aac gga aaa tct gac ggt aac aga ggg aaa ccg tcg acg gaa gtt gtt 157

Asn Gly Lys Ser Asp Gly Asn Arg Gly Lys Pro Ser Thr Glu Val Val

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cgg acg gta acg gag gaa gag gtg gat gag ttt ttc aag ata tta cgg 205
 Arg Thr Val Thr Glu Glu Glu Val Asp Glu Phe Phe Lys Ile Leu Arg
 35 40 45

aga gta cac gtg gcg aca cga acg gtt gcg aaa gtt aac ggc ggt gtt 253
 Arg Val His Val Ala Thr Arg Thr Val Ala Lys Val Asn Gly Gly Val
 50 55 60

gct gag gga gag tta ccg tct aag aag agg aaa cgg agt cag aat ctt 301
 Ala Glu Gly Glu Leu Pro Ser Lys Lys Arg Lys Arg Ser Gln Asn Leu
 65 70 75

ggg ttg aga aac tcg ttg gat tgt aac ggc gtt cga gac gga gaa ttc 349
 Gly Leu Arg Asn Ser Leu Asp Cys Asn Gly Val Arg Asp Gly Glu Phe
 80 85 90

gat gag att aat cgg gtc ggg tta cag ggt ttg ggt ttg gat ctg aac 397
 Asp Glu Ile Asn Arg Val Gly Leu Gln Gly Leu Gly Leu Asp Leu Asn
 95 100 105 110

tgt aaa ccg gaa cca gac agc gtt agt tta tcg ttg tagacttgta 443
 Cys Lys Pro Glu Pro Asp Ser Val Ser Leu Ser Leu
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gtccttcacg tttttcccct tcttacaata atcaattttt ttttaactac aatacttttg 503

aaaaaa 509

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 <213> Arabidopsis thaliana

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Lys Ser Asp Gly Asn Arg Gly Lys Pro Ser Thr Glu Val Val Arg Thr
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Val Thr Glu Glu Glu Val Asp Glu Phe Phe Lys Ile Leu Arg Arg Val
 35 40 45

His Val Ala Thr Arg Thr Val Ala Lys Val Asn Gly Gly Val Ala Glu
 50 55 60

Gly Glu Leu Pro Ser Lys Lys Arg Lys Arg Ser Gln Asn Leu Gly Leu
 65 70 75 80

Arg Asn Ser Leu Asp Cys Asn Gly Val Arg Asp Gly Glu Phe Asp Glu
 85 90 95

Ile Asn Arg Val Gly Leu Gln Gly Leu Gly Leu Asp Leu Asn Cys Lys

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Pro Glu Pro Asp Ser Val Ser Leu Ser Leu
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 <222> (646)..(665)
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 <222> (707)..(712)
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 catgacaaat attaatatat cagtgttaat aacatgtttt gttcttaaaa tacatgcatt 120
 ttaaaatcag acatttgttt taaaatcaaa tctaattctt tatatcacia cgacattgac 180
 ggaaaattca ggtaaaaaga gaaaataaag aatgagagat agagagattt ctatggaaaa 240
 agaaagagag aacatgtagg tgaacaaaat aaagagatat gatgatatat tttatgagag 300
 gtggtgaaga ttatttttagg agagggagag agaaatagaa aaagaaaatg acatggtgaa 360

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tctgaagaag atgaattgtg ttaaagatga agagagaaaag agaactccat ggctaaagtc 420
tcgtaaagaa gatgaaaaag aaacaaaaga aggaagaaga aagagaaagg ctaaaataga 480
ctaactattg ccaaaatttc tgtagccgac aaatactatt tggccaagg ttattttgtg 540
tattcttttg aagtcaaaag ttattttctta catatactct aaaaatatag ccgataccaa 600
tttttccaca catggacttc ctttattcca aaagtcaata aagtgtgacg tcatgatact 660
tacgctttta aacatcgcat gatgatgtca ttagcatcaa tctccaccgt ccaattttatt 720
tagttgttga caatatcgac cgtctaagtt ccacaccgac ggctataaga gtttcattat 780
aaatttttagc aaaataaaat cagcaaataa ttttttcttg actaagctta aacgacgccg 840
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agataacgga aaatctgacg gtaacagagg gaaaccgtcg acggaagttg ttcggacggg 960
aacggaggaa gaggtggatg agtttttcaa gatattacgg agagtacacg tggcgacacg 1020
aacggttgcg aaagttaacg gcggtgttgc tgagggagag ttaccgtcta agaagaggaa 1080
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attcgatgag attaatcggg tcgggttaca ggggttgggt ttggatctga actgtaaacc 1200
ggaaccagac agcgtagtt tatcgttgta gactttagt ccttcattgt tttccccttc 1260
ttacaataat caattttttt ttaactacaa tacttttgaa aaaaatggta aaagaagatt 1320
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aacataaatt ttactaaaat caatgtttta aaaaagtggt gatggtaaag atatcaattg 1500
ggcctttgcc tggcccggtt agtaatatg cagagtaggt atgggcctgt ataaggaggt 1560
ccaaaaaaag agcgggcatt gcgggttggg tgcgtttgga actttggatt gtggattagt 1620
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tttacgactt acgaacatat                                     1700

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<211> 608

<212> DNA

<213> Solanum tuberosum

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<221> CDS

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tgagagaata aagagaagta attgcactag cagtattgac aattaatcag ctgcccggct 120

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tga atg cta ctt atg gac gga gaa aag aag agg aag aga aca gca atc 168
Met Leu Leu Met Asp Gly Glu Lys Lys Arg Lys Arg Thr Ala Ile
1 5 10 15

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ggc gcc gga gat cgg agt aag gat gag gta gaa gct act gtg aag gag 216
Gly Ala Gly Asp Arg Ser Lys Asp Glu Val Glu Ala Thr Val Lys Glu
20 25 30

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gag gag ccg ccg tca gag gcg gag gtt gac gag ttc ttc gcg atc tta 264
Glu Glu Pro Ser Glu Ala Glu Val Asp Glu Phe Phe Ala Ile Leu
35 40 45

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cgg agg atg cat gtg gcg gtg aaa tat ctc cag aga aat gct cag att 312
Arg Arg Met His Val Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile
50 55 60

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cgg ccg gaa aac ctt aac gca tcg ccg gcc ggt gct aac ggt gtc gca 360
 Arg Pro Glu Asn Leu Asn Ala Ser Pro Ala Gly Ala Asn Gly Val Ala
 65 70 75

gct gga ccg aag aga gaa ccg gga atc gtg aga aaa ggt gat ttg gac 408
 Ala Gly Arg Lys Arg Glu Arg Gly Ile Val Arg Lys Gly Asp Leu Asp
 80 85 90 95

ctc aac act ctg ccg gac ggc gga gac taa ttaacgcagt ttaagcatag 458
 Leu Asn Thr Leu Pro Asp Gly Gly Asp
 100 105

gttaattaca taaatgcacc cttaattatc gtagattctt aagattgatc tgctgtacag 518

attaattaat taaagccttt ttttatatat atttctccgg taaacgggtt gctctttgtg 578

attttcttta ataaatttaa tttattttat 608

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<212> PRT

<213> Solanum tuberosum

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 Ala Gly Asp Arg Ser Lys Asp Glu Val Glu Ala Thr Val Lys Glu Glu
 20 25 30
 Glu Pro Pro Ser Glu Ala Glu Val Asp Glu Phe Phe Ala Ile Leu Arg
 35 40 45
 Arg Met His Val Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Arg
 50 55 60
 Pro Glu Asn Leu Asn Ala Ser Pro Ala Gly Ala Asn Gly Val Ala Ala
 65 70 75 80
 Gly Arg Lys Arg Glu Arg Gly Ile Val Arg Lys Gly Asp Leu Asp Leu
 85 90 95
 Asn Thr Leu Pro Asp Gly Gly Asp
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<210> 6

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<212> DNA

<213> Lycopersicon esculentum

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<221> CDS

<222> (3) .. (233)

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      Ser Glu Gly Glu Val Asp Glu Phe Phe Ala Ile Leu Arg Arg Met
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cac atg gcc gta aaa tat ctt cag aga aac gct cag att cag ccg gaa   95
His Met Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Gln Pro Glu
              20              25              30
aac gtt aac gct cac ggc agc aag tta acc gca tcg ccg gcc ggt gtt   143
Asn Val Asn Ala His Gly Ser Lys Leu Thr Ala Ser Pro Ala Gly Val
              35              40              45
aac gga gat gca act gga cag aag aga gaa cgg gga atc gtg aga aaa   191
Asn Gly Asp Ala Thr Gly Gln Lys Arg Glu Arg Gly Ile Val Arg Lys
              50              55              60
ggt gat ttg gac ctc aac act ttg ccg gac tgc gga gac taa           233
Gly Asp Leu Asp Leu Asn Thr Leu Pro Asp Cys Gly Asp
              65              70              75
cgcagtttaa gcataggtta attacagaaa tgcaccttta attatcgtag attcttaaga 293
ttgatctgct gtacaaatta attaaatgaa gccttttttt atatataaaa aaaaaa   349

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<210> 7
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 <213> Lycopersicon esculentum

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 1              5              10              15
Met Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Gln Pro Glu Asn
      20              25              30
Val Asn Ala His Gly Ser Lys Leu Thr Ala Ser Pro Ala Gly Val Asn
      35              40              45
Gly Asp Ala Thr Gly Gln Lys Arg Glu Arg Gly Ile Val Arg Lys Gly
      50              55              60
Asp Leu Asp Leu Asn Thr Leu Pro Asp Cys Gly Asp
      65              70              75

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<210> 8
 <211> 75
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 <213> Glycine max

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<400> 8
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Glu Ser Glu Arg Val Lys Asn Lys Arg Leu Lys Gly Val Glu Glu Glu
      20              25              30

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Asp Gly Ser Asp Gly Val Pro Thr Glu Glu Glu Val Glu Glu Phe Phe
35 40 45

Ala Ile Leu Arg Arg Met Arg Met Ala Val Lys Tyr Phe Asp Asp Lys
50 55 60

Gly Arg Gly Gly Arg Glu Trp Arg Glu Ala Leu
65 70 75

<210> 9

$\langle 211 \rangle$ 90

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Gly Gly Val Pro Thr Glu Glu Glu Val Glu Glu Phe Phe Ala Ile Leu
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Arg Arg Met Arg Val Ala Val Lys Tyr Phe Asp Asp Lys Gly Ser Gly
20 25 30

Gly Lys Glu Trp Arg Lys Ala Leu Glu Thr Ala Glu Leu Thr Val Asp
35 40 45

His Arg His Asp Val Val Ala Ala Glu Glu Asp Asp Lys Pro Arg Lys
50 55 60

Lys Gly Gly Glu Val Ile Ile Asn Glu Gly Phe Asp Leu Asn Ala Val
65 70 75 80

Ala Pro Glu Ala Ala Glu Gly Gly Gly Ala
85 90

$\langle 210 \rangle$ 10

<211> 85

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<213> Nicotiana tabacum

<400> 10

Met Asp Gly Glu Lys Lys Arg Lys Arg Thr Glu Asn Gly Lys Ala Asn
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Gly Gly Asp Arg Asn Arg His Glu Arg Lys Ser Ala Ala Asn Glu His
20 25 30

Thr Ala Val Ser Pro Pro Pro Ser Glu Ala Glu Val Asp Glu Phe Phe
35 40 45

Ala Ile Leu Arg Arg Met His Val Ala Val Arg Tyr Leu Gln Glu Ser
50 55 60

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Gly Gln Lys Arg Val Val Pro Lys Gly Asp Leu Asp Leu Asn Thr Leu
65 70 75 80

Pro Gly Asn Gly Asp
85

<210> 11
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ggaacgaatt catggacacc accattg 27

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NIM3'SalI

<400> 12
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<210> 13
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<400> 14
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<210> 15
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<210> 18
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acgacgccgt taacattttc 20

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gaa gaa aag atg gag aag ttg tac aca gtg ctt aaa aac gca agg gaa	96
Glu Glu Lys Met Glu Lys Leu Tyr Thr Val Leu Lys Asn Ala Arg Glu	
20 25 30	

atg cgg aaa tat gtc aac agc tcc atg gag aag aag aga cag gaa gaa	144
Met Arg Lys Tyr Val Asn Ser Ser Met Glu Lys Lys Arg Gln Glu Glu	
35 40 45	

gaa gaa aga gca agg gtt cgt aga ttc cct tcg ttt cag cca gaa gat	192
Glu Glu Arg Ala Arg Val Arg Arg Phe Pro Ser Phe Gln Pro Glu Asp	
50 55 60	

ttc att ttc atg aat aaa gca gag gcc aac aac att gaa aaa gca gct	240
Phe Ile Phe Met Asn Lys Ala Glu Ala Asn Asn Ile Glu Lys Ala Ala	
65 70 75 80	

aat gag agc tct tca gca tcc aac gag tat gat ggc tct aag gaa aag	288
Asn Glu Ser Ser Ser Ala Ser Asn Glu Tyr Asp Gly Ser Lys Glu Lys	
85 90 95	

caa gaa gga tct gag act aac gtt tgt tta gac ttg aat ctt tct ctg	336
Gln Glu Gly Ser Glu Thr Asn Val Cys Leu Asp Leu Asn Leu Ser Leu	
100 105 110	

tagcatacat acatacaaga gacaaagagc tcttcagttt ctgtataagc aacaaagaat	396
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gtagtagtaact acgtacc	413
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20 25 30

Met Arg Lys Tyr Val Asn Ser Ser Met Glu Lys Lys Arg Gln Glu Glu
35 40 45

Glu Glu Arg Ala Arg Val Arg Arg Phe Pro Ser Phe Gln Pro Glu Asp
50 55 60

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Phe Ile Phe Met Asn Lys Ala Glu Ala Asn Asn Ile Glu Lys Ala Ala
65 70 75 80

Asn Glu Ser Ser Ser Ala Ser Asn Glu Tyr Asp Gly Ser Lys Glu Lys
85 90 95

Gln Glu Gly Ser Glu Thr Asn Val Cys Leu Asp Leu Asn Leu Ser Leu
100 105 110

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